

Michigan Health Information Technology Commission

2007-2008 Report to the Michigan Legislature

December 2008

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Introduction & Overview

The Michigan Health Information Technology (HIT) Commission was created in May 2006 as an advisory commission within the Michigan Department of Community Health (MDCH) when the Michigan Legislature passed and the Governor signed Public Act 137-2006. The purpose of the HIT Commission is to facilitate and promote the design, implementation, operation, and maintenance of an interoperable health care information infrastructure in this state as well as advance the adoption of health information technologies throughout the state's health care system.

With the guidance of the HIT Commission, Michigan has gained national recognition for the advancement of HIT and Health Information Exchange (HIE) through the Michigan Health Information Network program or MiHIN. The MiHIN is a joint effort between MDCH and the Michigan Department of Information Technology.

The MiHIN project is uniquely focused on promoting HIE as a strategy for increasing the value and therefore, adoption of HIT.

Health Information Exchange is a way to electronically move personal health and medical information securely between various health care organizations and providers under current medical privacy and confidentiality standard procedures. The goal of HIE is to facilitate delivery and retrieval of clinical data to provide safe, timely, efficient, effective, and equitable patient-centered care. In short, the goal of HIE is to ensure that providers have the right information about their patient at the right time to provide the best possible care.

Health Information Technology is the use of computer software and hardware to process health care information electronically within a health care organization – examples include, Electronic Medical Record (EMR) systems, administrative systems and clinical information systems.

Through the MiHIN program, the HIT Commission approved one of the most comprehensive HIE planning documents in the nation, called the *MiHIN Conduit to Care*. The HIT Commission provides oversight to the MiHIN HIE planning and implementation grant program, which has provided funding to organizations covering all Michigan counties to begin the planning and implementation of Regional Health Information Organizations (RHIOs). A subgroup of HIT Commissioners serve on the advisory board of the MiHIN Resource Center, which supports the RHIOs forming across the state by serving as a single point for research, support and communications. See Appendix E for a full explanation of the MiHIN strategy.

The legislation creating the HIT Commission requires that each year it issue a report to the Legislature detailing activities and providing recommendations for action. The report that follows fulfills this requirement. As such, the HIT Commission submits the following recommendations for consideration:

- *Recommendation #1 – Continue Funding for MiHIN* - The HIT Commission recommends that Michigan continue to provide grant funding for the MiHIN program to support a statewide infrastructure to ensure statewide exchange of health information.

- *Recommendation #2 – Recognize the adopted definition of HIE* – Recognize in all State of Michigan activities the HIT Commission adopted definition of Health Information Exchange (HIE).
- *Recommendation #3 - HIE Recognition in the Public Health Code* - The Commission recommends that Michigan identify a place in the Public Health Code to Define HIE and serve as an expandable section for future HIE legislation.
- *Recommendation #4 – Adopt Informed Opt-Out* - The HIT Commission recommends that Michigan establish “Informed Opt-out” as the method of consumer control for protected health information in an HIE.
- *Recommendation #5 – Adopt a Statewide Infrastructure for Communication between HIEs* – The HIT Commission recommends that a statewide infrastructure be developed to ensure that there is communication between HIEs. The recommended infrastructure is called a Master Patient Index (MPI) and a Record Locator Service (RLS). The HIT Commission recommends that the State of Michigan develop and implement an MPI and RLS to facilitate the sharing of information statewide.

Commission Membership

The 13-member HIT Commission was appointed by Governor Granholm in August of 2006. The current membership includes:

- Robin Cole of Detroit represents consumers for a term expiring August 3, 2011.
- Gregory Forzley, M.D., of Grand Rapids represents doctors of medicine for a term expiring August 3, 2011.
- Joseph Hohner of Canton represents nonprofit health care corporations for a term expiring August 3, 2010.
- Toshiki Masaki of Canton represents purchasers and employers for a term expiring August 3, 2009.
- Kimberly G. Ross of Dewitt represents pharmaceutical manufacturers for a term expiring August 3, 2008.
- Mark Notman, Ph.D., of East Lansing represents schools of medicine in Michigan for a term expiring August 3, 2009.
- Janet Olszewski of Williamston, director of the Michigan Department of Community Health, is appointed for a term expiring August 3, 2008.
- Thomas Lauzon of Shelby Township represents health plans or other third party payers for a term expiring August 3, 2010.
- Jeanne Strickland of Brighton represents hospitals for a term expiring August 3, 2009.
- Ken Theis, director of the Michigan Department of Information Technology is appointed for a term expiring August 3, 2008.
- Larry Wagenknecht, R. Ph., of Haslett represents pharmacists for a term expiring August 3, 2010.
- Robert Paul of Novi, represents members of the health information technology field for a term expiring August 3, 2010.
- R. Taylor Scott, D.O., of Williamston represents doctors of osteopathic medicine and surgery for a term expiring August 3, 2011.

2007-2008 Activities & Recommendations

In 2007-2008 the HIT Commission formed several workgroups to convene stakeholders, conduct research, conduct interviews with experts and develop comprehensive recommendations for action. This section contains descriptions of the workgroups, their scope and their output. The recommendations in this section come from input from the workgroups that was then deliberated and then voted on by the HIT Commission.

MDCH HIE Grant Program

The MDCH budget for fiscal years 2007 and 2008 has included a \$5 million appropriation to support a grant program to providing planning and implementation funding for regional Health Information Exchange (HIE) projects throughout the state.

The grant program, which is administered out of MDCH with the guidance of the HIT Commission, is part of the Michigan Health Information Network or MiHIN.

HIE is defined as a set of agreed upon business processes and the technological infrastructure to enable movement of health care information electronically among and between organizations for patient care.

The goal of the MiHIN program is to spur the development of regional HIE projects and support implementation of these projects into financially sustainable community services. HIE support is viewed as three phases: planning, implementation and operations.

The MDCH grant program is only for planning and implementation. The end product of the grants is for the HIE project to develop mechanisms for self-sustainability in the operations phase.

In 2007, seven grants were distributed with work currently underway in over 70 counties in Michigan. In 2008, two more grants were provided to cover projects in all of the remaining Michigan counties. With these two new awards, all the counties in the state are part of either planning or implementation efforts for a regional health information organization (RHIO). See Appendix F for a map of the nine RHIO regions that received grants for HIE planning and implementation.

The MDCH grant program also provides funding for a MiHIN Resource Center that coordinates all of the activities of the regional HIEs. Subgroups of HIT Commissioners serve as the advisory board for the MiHIN Resource Center. The MiHIN Resource Center provides a coordination point for the RHIO grantees and is charged with moving each RHIO forward by providing support, assistance and expertise.

Michigan has received national recognition from the Health Information Management Systems Society (HIMSS) and the eHealth Initiative for this groundbreaking grant program and statewide HIE organization with the MiHIN Resource Center. Without this grant program, the HIT Commission believes that HIE would not successfully progress throughout the state.

With this understanding, the Commission makes its first recommendation to continue appropriating funding for the MiHIN program, which includes the implementation and operation of a statewide infrastructure to support the statewide exchange of health information.

➤ *Recommendation #1 – Continue Funding for MiHIN*

The HIT Commission recommends that Michigan continue to provide grant funding for the MiHIN program to support a statewide infrastructure to ensure statewide exchange of health information.

Definition and Value Proposition of HIE

One of the first tasks the HIT Commission tackled was to define the term Health Information Exchange (HIE) and conduct research on the value proposition of HIE for every type of stakeholder.

Recognizing that one of the biggest challenges for fledgling HIEs is developing a business plan for financial sustainability, the HIT Commission sought to identify HIE functions and value propositions from the stakeholders' points of view. The HIT Commission developed a report, *Health Information Exchange: Basic Functions and Stakeholder Value*, to be used by Michigan's regional HIEs. This report has been recognized by the State Level HIE Consensus Project the definitive collection of value propositions for HIE. See Appendix A for the full report.

Further, the HIT Commission adopted a definition of HIE in order to support the value proposition. The HIT Commission is making the recommendation to the Michigan Legislature to recognize this definition.

➤ *Recommendation #2 – Recognize the adopted definition of HIE.*

The federal government has recently proposed a definition of Health Information Exchange (HIE) as “The electronic movement of any and all health-related data according to an agreed-upon set of interoperability standards, processes and activities across non-affiliated organizations in a manner that protects the privacy and security of that data; and the entity that organizes and takes responsibility for the process.” It distinguishes the term “Regional Health Information Organization” (RHIO) by defining it as “A multi-stakeholder governance entity that convenes non-affiliated health and healthcare-related providers and the beneficiaries they serve, for the purpose of improving health care for the communities in which it operates. It takes responsibility for the processes that enable the electronic exchange of interoperable health information within a defined contiguous geographic area.”

The HIT Commission endorses these definitions, but for the purposes of planning and implementation of MiHIN would further specify that HIE is characterized by (a) the exchange of clinical data and some forms of administrative data such as demographic and eligibility information, (b) across organizations and a broad base of health care participants that (c) encompasses a broad population base and (d) covers a broad array of clinical information. The delivery of comprehensive clinical information in a timely manner to providers at the point of care is the key HIE activity that creates societal value.

The broad base of participants exchanging data should optimally include:

- a. Practitioners & Clinicians
- b. Hospitals and health systems
- c. Health Plans/Insurers
- d. Laboratories and other data providers
- e. Pharmacists & Pharmacy Benefit Managers
- f. Public Health
- g. Behavioral Health
- h. Home health agencies & Extended Care Facilities
- i. Other participants in health related data exchange

Regional Health Information Organizations have strong potential to positively affect health care quality, costs, and access in Michigan. In order for them to succeed in this mission, however, they need a self-sustaining business model. After an initial period of contributions and investments, their basis of support should be derived from the demonstrable value that they offer to a number of stakeholders. This list should optimally include:

- a. Employers (directly or through health plans)
- b. Practitioners & Clinicians
- c. Hospitals and health systems
- d. Health Plans/Insurers
- e. Laboratories and other data providers
- f. Pharmacists & Pharmacy Benefit Managers
- g. Public Health
- h. Behavioral Health
- i. Home health agencies & Extended Care Facilities
- j. Other participants in health related data exchange

Legal Work Group & Privacy Work Group

As part of the Commission's charge to identify barriers to health information technology and exchange and develop strategies for remediation of barriers, the Commission tasked the MiHIN Resource Center with a comprehensive review of state laws affecting health information technology and exchange. A group of health law experts from around the state formed the MiHIN legal workgroup which was tasked with determining the areas of Michigan Statutes' needing to be changed; creating an ordered short list of those priority areas of law based on the need for action; and drafting a subsequent position paper detailing those priorities and the reasoning behind them.

The legal working group found no significant barriers to health information technology and exchange in existing state statutes. The legal working group did identify recommendations that could boost adoption of HIE and presented a position paper to the Commission on December 13, 2007. The Commission unanimously supported the recommendations in theory and tasked MDCH with identifying appropriate recommendations for action. See appendix B for the full report of the Legal Work Group. The Recommendations for action are as follows:

➤ *Recommendation #3 - HIE Recognition in the Public Health Code*

Noting that there will be a need to add legislation regarding HIE, the Commission recommends that Michigan identify a place in the Public Health Code to define HIE and serve as an expandable section for future HIE legislation

➤ *Recommendation #4 – Adopt Informed Opt-Out*

The HIT Commission recommends that Michigan establish “Informed Opt-out” as the method of consumer control for protected health information in an HIE.

The precedence for this is the opt-out approach taken by MDCH for use with the Michigan Care Improvement Registry (MCIR). In addition to the informed opt-out provision, in the case of an HIE, consumers should be counseled or appropriately educated on the potential risk they face by omitting health information from providers and the limitations to how their data will be used/disclosed. Under the opt-in approach, healthcare providers participating in the HIE would be required to obtain permission from patients before allowing their information to be available via the network. Without this permission, a patient's health information would not be accessible through the HIE. The majority of working Health Information Exchanges throughout the nation are successfully using informed opt-out as their consumer control mechanism.

To further validate the Opt-out policy, the HIT Commission convened a workgroup to flesh-out the policies involved in establishing informed opt-out. The workgroup consisted of community physicians, consumers, privacy officers and health plans. The goal of this workgroup was to develop language to be used in a Notice of Privacy Practices (NPP) in a healthcare office, clinic or hospital and to develop a form for opting out. The NPP language that was approved by the HIT Commission is available in Appendix D. The Commission also voted that comprehensive consumer education materials must be developed and made available upon request.

Technical Solutions Work Group

Since most health care is delivered locally, health information exchange will occur within specific regions of Michigan. However, there is a clear need to enable health information to be exchanged statewide across the defined HIE regions. Addressing the need to exchange health information statewide is a part of the MiHIN vision. In order for this important phase to be possible, patients must be able to be uniquely identified within and across all nine regional HIEs throughout the state.

There are two types of technologies that are needed to facilitate patient and record matching: a master patient index and a record locator service. A Master Patient Index (MPI) is a database program that collects patients' identification numbers and relevant identifying information and keeps them under a single, enterprise-wide number. It is used to uniquely identify patients so that clinical information can be associated correctly with the appropriate person. A Record Locator System (RLS) is a database system that stores the locations of electronically accessible clinical records for all patients. Once a patient is uniquely identified, the RLS will provide pointers to where electronic records for that patient can be found. A statewide RLS would identify which regional HIEs contain clinical information about a particular patient.

The HIT Commission ordered a technical work group be convened to review options to connect the regional HIEs across the state with an MPI and RLS to form a statewide HIE system. The HIT Commission also voted to adopt the following set of principles to address patient identification between regions:

- A centralized, statewide patient matching service should have a high degree of accuracy.
- The MiHIN patient identification system needs to be forwardly compatible with national efforts under NHIN.
- A MiHIN patient matching system must be available and functional by the time multiple HIEs are operating in the state.
- The MiHIN regions must be involved in the development of a technical solution.
- The MiHIN patient identification system must be able to connect with state government systems such as the Michigan Care Improvement Registry and the Michigan Disease Surveillance System.

A technical workgroup was convened in March 2008. This workgroup called-upon the expertise of national MPI and RLS resources and thoroughly reviewed potential technical solutions. See Appendix C for the full report from the Technical Solutions Work Group. The workgroup presented the HIT Commission with several options and the HIT Commission voted to adopt the following recommendation:

➤ *Recommendation #5 –MPI and RLS Service Statewide Design*

The HIT Commission recommends that a statewide infrastructure be developed to ensure that there is communication between HIEs. The recommended infrastructure is called a Master Patient Index (MPI) and a Record Locator Service (RLS). The HIT Commission recommends that the State of Michigan develop and implement an MPI and RLS to facilitate the sharing of information statewide.

Communications & Education Plan

Recognizing the need to increase awareness of HIE and the MiHIN project, the HIT Commission charged the MiHIN Resource Center with developing a comprehensive communications and education plan. The HIT Commission noted that individual stakeholders have specific and unique communications and education needs and a communications and marketing plan must be deep enough to reach each stakeholder.

In response to this charge, the MiHIN Resource Center engaged the expertise of a local communications firm and developed the following goals:

- Build stakeholder awareness of MiHIN and overcome barriers to participation.
- Build media awareness of MiHIN.
- Increase visibility and awareness of MiHIN and the momentum behind it at the local, state and national levels.
- Build awareness of MiHIN's value with elected officials to garner their support in gaining stakeholder commitment to the network.
- Establish a strong base of supporters for MiHIN among stakeholder leaders, policy makers and opinion leaders

To meet the goals listed above, the MiHIN Resource Center and the communications experts developed the following strategies:

Step 1: Assessment

A detailed assessment of the current status of MiHIN, including its strengths, weaknesses and opportunities from a strategic communications perspective. Success stories and identification of existing allies (and adversaries, as the case may be) should be included in this section.

Step 2: Goals and Objectives

A concise statement of what the communications plan is intended to achieve, including identifying measurable outcomes and timelines.

Step 3: Research

The most effective strategic communication efforts begin with research designed to determine our existing level of awareness, support and opposition. Both quantitative and qualitative research may be employed to determine the pros and cons articulated (formally and informally) by each of our key stakeholder groups, success stories in other communities with other programs,

best practices, media coverage to date, existing communication tools (and their effectiveness), etc. We may even collectively decide to pursue a public opinion poll and/or focus groups to determine the most effectiveness messaging and influencers.

Step 4: Target Audiences

Our communications efforts must be designed to credibly and effectively reach each of our target audiences – external and internal.

Step 5: Communication Tools and Tactics

While the planning process will dictate which specific communication tools and tactics are most promising and appropriate, the following tools and tactics are typically part of strategic communications programs.

- Web sites and Blogs (and other social networking as available and appropriate.)
- E-mail blasts.
- News releases, news conferences, media briefings and media events.
- Video production, including posts to YouTube and other uses as appropriate.
- Editorial board meetings.
- Viewpoint columns and guest editorials.
- Letters to the editor.
- Radio talk show bookings.
- Fact sheets.
- Frequently Asked Questions (FAQs).
- Position papers, issue briefings and backgrounders.
- Speeches and issue-specific talking points.
- Letters to elected and appointed officials.
- Printed and electronic newsletters.
- Speakers bureau/public speaking opportunities.
- Events – town hall meetings, community organization meetings

The HIT Commission will continue implementing the communications and education plan in the remainder of 2008.

Future Agenda

With the remainder of 2008 and the 2009 calendar year, the HIT Commission agenda will consist of researching and deliberating on several specific topics, including:

- Evaluate the MiHIN strategy to ensure that it is keeping up with the current state of technology
- Strategically implementing the communications and education plan
- Develop mechanisms to increase the adoption of Health Information Technologies, such as electronic medical records, e-prescribing and other technologies that improve quality and efficiency of health care.
- Implementing a statewide Record Locator Service/Master Patient Index
- Evaluating the success and tailoring the focus of MiHIN grant program accordingly
- Working with state and local public health to develop strategies for maximize public health and mental health potential for connecting with Regional Health Information Organizations.
- Convening stakeholders and experts to continue shaping appropriate privacy and security policies
- Defining and supporting HIE and HIT sustainability models

Further, the HIT Commission's 2008-2009 agenda will include other issues and topics as necessary. The HIT Commission will continue to be involved in the Regional HIE projects and will continue to provide guidance to the MiHIN Resource Center. The HIT Commission will issue an annual 2008-2009 report reflecting the Commission's recommendations to the State of Michigan.

Appendix A – Value Proposition Report

Health Information Exchange: Basic Functions and Stakeholder Value

Michigan Health Information Network Resource Center
Distributed to the Health Information Technology Commission on January 3, 2008

Introduction

Health Information Exchange (HIE) was defined in the *MiHIN Conduit to Care Report* as “an infrastructure to enable movement of health care information electronically across organizations within a region or community. It must also have agreed upon business relationships and processes to facilitate information sharing across organizational boundaries. HIE provides the capability to electronically move clinical information among disparate health care information systems while maintaining the meaning of the information being exchanged.” The *Conduit to Care* report then proceeds to describe a step-by-step process for building HIE based on the experience of pioneers in the field who built exchanges from the ground up. It highlights such specific functions as “results reporting” and distinguishes HIE development into stages and phases.



As the HIE industry matures, the movement of clinical information across disparate systems is not difficult to achieve. HIE vendors are able to offer, for example, ready-made products and services that cover most of the activities listed in the *Conduit to Care* report. Information can be retrieved from multiple sources and delivered by multiple means into Electronic Medical Records, fax machines, web portals, “clinical inboxes” and other media used by clinicians. It can be stored in a variety of formats (in “centralized,” “federated” or “hybrid federated” databases) and reported to any number of authorized recipients (primary care physicians, public health departments, consumers, emergency departments, etc.).

Although interoperability standards and other infrastructure issues remain important, the far greater challenge facing most HIEs is finding “agreed upon business relationships and processes” that can sustain HIEs once initial grant funding runs out. The quest for a sustainable business model currently dominates the discussion of many HIE groups. Of the 165 RHIOs identified by eHealth Initiative in 2006, only 28 were actually exchanging data and virtually all relied upon some form of “contributed income” such as grants. In eHealth Initiatives’ 2007 survey, 32 RHIOs (of 130 respondents) indicated that they were exchanging data. 91% of those surveyed indicated that developing a sustainable business model was either a moderate or very difficult challenge. To succeed in their mission and to receive sustainable support from contributors,

HIEs need to articulate the value they bring to individual stakeholders as well as the community as a whole. If HIE organizers fail to identify the shared and individual benefits in early stages of planning, the job of convincing supporters to participate in the network and contribute financially to its success becomes exceedingly difficult. “Organizers must understand and respond to the differing perspectives and needs of each stakeholder because HIEs require enormous trust and cooperation from their participants. Organizations must be willing to share data, use data provided by others, and help pay for the up-front and ongoing costs of the exchange.”¹

An early step in the path to financial sustainability is to identify HIE functions and value propositions from the stakeholders’ points of view. The experience of sustainable RHIOs and HIEs across the country suggests that each started with the functions stakeholders identified as having the highest value and later expanded into other services. Promoters and stakeholders alike must be able to explain what a HIE does and who it benefits, ultimately in a format understandable to key decision makers. This document is meant to spur discussion and hopefully increase mutual understanding of HIE stakeholders. The following pages discuss some basic functions of HIE, proposing value propositions that major stakeholders can expect from these functions in theory, and then supporting these theoretical benefits with case studies and other empirical evidence wherever possible. It is meant to grow and evolve as more concrete evidence from sustainable HIEs become available.

Essential HIE Functions

HIE functions can be grouped into five broad categories:

1. Clinical Messaging
2. Clinical Records
3. Public Health Reporting
4. Quality
5. Personal Health Records

Some of these categories cover a broad array of features while others are fairly proscribed. The key for many providers is that HIE functions combine to demonstrate a marked improvement over current methods. As with e-mail and other electronic means of communication, the more users that participate in the network and the more information that flows through it, the more useful it becomes and attracts participants. HIE projects that serve only a limited set of health care settings or a limited number of patients miss the opportunity to engage most providers and other critical stakeholders.

Clinical messaging includes every communication from ordering tests to receiving radiological and laboratory results electronically. Providers with electronic medical records (EMRs) may have them updated remotely, but even providers with just a computer and Internet connection may receive messages in a “clinical inbox.” Examples of clinical messaging include:

¹ Sarath Malepati, MD; Kathryn Kushner, MA; and Jason S. Lee, PhD. “RHIOs and the Value Proposition: Value is in the Eye of the Beholder.” *Journal of AHIMA*, March 2007, p. 25. Currently available at: <http://www.nihcm.org/~nihcmor/pdf/RHIOsValueProp.pdf>

- ePrescribing
- Computerized Provider Order Entry (CPOE)
- Results delivery
- Physician and Specialist Consultation

Clinical Records includes the storing of clinical information either in a central repository or in separate databases that can be accessed to create a patient-specific record. Such records may include just the history of messages sent through the clinical messaging service, or may contain more detailed patient information. Clinical records may include such information as:

- Patient registration information
- Allergies
- Medication histories
- Radiological archives
- Test results
- Physician notes
- Hospital admission
- ED Visits
- Links to such databases as MCIR for immunization records

Public health reporting is a current responsibility expected to be assumed by HIEs. Although state databases such as the Syndromic Surveillance and Michigan Disease Surveillance System currently receive and send some information electronically, the quantity, quality, and timeliness of such information is expected to dramatically change once the HIEs are fully functional and sharing reportable information with the state and CDC.

The **Quality** functions of HIEs are expected to become more prominent as clinical data supplements claims data in pay for performance models. The robust clinical data found in HIEs can be compared against claims data and other sources of information used to create quality measures.

Personal Health Records (PHRs) have failed to catch on so far, in part because they require consumers to enter their own data. This is expected to change as HIEs are able to automatically supply PHRs with information. As the population ages, caregivers will increasingly find PHRs to be valuable tools.

The following chart lists potential value propositions by stakeholder and HIE function, supported by case studies wherever possible.

Basic HIE Functions and Stakeholder Value Propositions

	Clinical Messaging	Clinical Records	Public Health Reporting	Quality	Personal Health Records
<u>Stakeholder</u>					
Physicians Theoretical Benefits	1.) Reduced administrative and paper costs; 2.) Timely, convenient information availability; 3.) Efficient referrals and consultations; 4.) Improved work flow	1.) Reduced administrative, storage, and paper costs; 2.) “EMR Lite” web portal to records cost-effective alternative to full EMR; 3.) Timely access to relevant data for improved decision making; 4.) Savings on malpractice premiums	1.) Fulfills public health reporting mandates; 2. Saves time compared to current reporting system; 3.) Receive automated public health alerts more quickly	1.) Enhanced tools for quality improvement efforts; 2.) Enhanced ability to spot potentially harmful drug interactions; 3.) Reduced burden to report pay-for-performance measures; 4.) Better coordinated care	1.) Enhanced communication tools for reaching patient base; 2.) Increased customer loyalty
Case Studies	Automating clinical processes results in improved physician and staff efficiency by saving time tracking results, according to vendor study. Reduction of medication related phone calls between clinicians and pharmacists by \$ 2.71 billion / year across the country	EHR in ambulatory clinics demonstrated positive ROI. A 51% to 100% reduction in chart pulls as witnessed by Cox Health Systems & 19 neurologists at Noran Neurological in Minneapolis. Allina Health System, Minneapolis, has realized a 51% decrease		Indiana Health Information Exchange anticipates that qualifying physicians could earn \$10,000–\$20,000 each per year through Quality Health First program	

	Clinical Messaging	Clinical Records	Public Health Reporting	Quality	Personal Health Records
	<p>Bloomington eHealth Collaborative anticipates ROI of \$5-7,000 per physician in practices using clinical messaging.</p> <p>Southeast Michigan's ePrescribing initiative helps to reduce harmful interactions and allergic reactions</p>	<p>in transcription costs since implementing an EMR system.</p>			
Hospitals Theoretical Benefits	<p>1.) Reduced clerical, paper and record retrieval costs; 2.) Improved work flow; 3.) Simplified internal and external network communications; 4.) Physician alignment</p>	<p>1.) Reduced clerical and communication costs; 2.) Reduced chart storage costs; 3.) Reduced unnecessary admissions</p>	<p>1.) Fulfills public health reporting mandates; 2.) Receive automated public health alerts more quickly</p>	<p>1.) Reduced medical errors; 2.) Better data collection for quality measures</p>	<p>1.) Enhanced communication tools for reaching patient base; 2.) Increased customer loyalty</p>
	<p>Reduction in transaction costs experienced by Kentucky medical center after joining HIE.</p> <p>Reduction in messaging costs from 81 cents per transaction to 17-37 cents a transaction for Indiana Health Information Exchange (IHIE) participants</p> <p>Hospital executive estimates that IHIE's</p>	<p>Jackson Community Medical Record experienced positive results of EHR like reduced duplication testing, Improved referral process, Improved timelines in delivering test results to physicians, increased efficiency with ability to see more patients per day.</p>			

	Clinical Messaging	Clinical Records	Public Health Reporting	Quality	Personal Health Records
	<p>clinical messaging system saved his institution \$1.2 million in postage alone</p> <p>An employee of Bethesda Healthcare System affiliate reports saving more than two hours per day on printing, sorting and filing data for eight physicians through use of a clinical messaging system.</p>				
Emergency Departments	1.) Streamlined and fast connections to physicians, labs and other	1.) Enhanced ability to view patients' medical histories, allergies, current medications, and other pertinent treatment information; 2.) Reduced unnecessary work-ups and admissions for patients with known medical conditions; 3.) Reduce wait times	1.) Fulfills public health reporting mandates; 2.) Receive automated public health alerts more quickly	1.) Ability to detect inappropriate behaviors (such as drug-shopping); 2.) Reduced inappropriate care and avoidable risks	
		Delaware study shows \$604 reduction in per-encounter ER costs after EHR implemented			
Payers Theoretical Benefits	1.) Lower transaction costs; 2.) Increased patient safety through fewer procedural errors; 3.) Improved	1.) Reduced payments for duplicated services such as tests; 2.) Reduced payment for hospital admissions and		1.) Improved data for disease management and wellness programs; 2.) Improved	1.) Improved customer satisfaction and service

	Clinical Messaging	Clinical Records	Public Health Reporting	Quality	Personal Health Records
	coordination of care	ED visits; 3.) Reduced prescription drug costs in avoiding duplication, adverse interactions, and by tracking compliance; 4.) Improved physician management of complicated patients		information to support research, audit and policy development; 3.) Ability to track provider performance and address problems more quickly; 4.) Enhanced ability to educate and address provider needs more rapidly	
	Blue Cross Blue Shield of Massachusetts (BCBSMA) estimates that CPOE has reduced medication errors by 90% and overall errors by at least 50%.	<p>WNY HealthNet projected savings annually of \$57.8 Million through reduced unnecessary redundant testing</p> <p>Annual cost of all patient care was far lower for patients assigned to an electronic medical records group (\$943) than those assigned to a paper chart group (\$1,539).</p> <p>Florida Medicaid is currently realizing savings of five dollars for every dollar it spends on keeping and managing electronic patient records.</p>			

	Clinical Messaging	Clinical Records	Public Health Reporting	Quality	Personal Health Records
		Annual cost of all patient care was far lower for patients assigned to an electronic medical records group (\$943) than those assigned to a paper chart group (\$1,539).			
Employers Theoretical Benefits	1.) Reduced premium rate growth, by cost reductions of streamlined care processes	1.) Reduced premium rate growth by cost reduction in ED visits, preventable errors and duplicate services; 2.) Reduced time reviewing worker's compensation claims		1.) Improve transparency of quality of care measures for employees; 2.) Reduced absenteeism through improved management of chronic care conditions	1.) PHR aids consumer- directed health care measures
		Nissan North America enrolled all its Tennessee-based employees into Shared Health's Clinical Health Records, anticipating improved quality.			
Consumers Theoretical Benefits	1.) Reduced waiting times as results between providers are transmitted more quickly;	1.) Higher quality of care; 2.) Reduced fragmentation of health records; 3.) Increased safety 4.) Reduced medication, testing, and treatment duplication		1.) Improved quality of care through informed caregivers;	1.) Increase care coordination and opportunity for engagement in personal health management; 2.) Useful tool for

	Clinical Messaging	Clinical Records	Public Health Reporting	Quality	Personal Health Records
					making informed choices, as medical records become available; 3.) Empower and inform caregivers; 4.) Back-up storage in case of disaster
Laboratories Theoretical Benefits	Decreased EDI and results delivery costs, increased efficiencies				
Pharmacies / PBMs Theoretical Benefits				Enhanced ability to spot potentially harmful drug interactions	
Public Health Agencies Theoretical Benefits		1.) Potential data gathering for disease surveillance, obesity measures, and other public health concerns	1.) Early detection of disease outbreaks or conditions suggesting epidemics; 2.) Ability to send health alerts quickly; 3.) Easier integration of information from disparate sources	1.) Tools to improve population health analysis	
Statewide Impact Theoretical Benefits	Reduced health care expenditures.	Reduced health care expenditures.		Overall public benefit to quality of care	

	Clinical Messaging	Clinical Records	Public Health Reporting	Quality	Personal Health Records
	State of Massachusetts could realize over \$36 million in savings if regional data sharing solutions were widely adopted by 70 percent of hospitals, two-thirds of the independent laboratories, 60 percent of the pharmacy benefit managers, and 25 percent of the providers across the state.	Study estimates that net potential savings in Oregon from the widespread adoption of advanced health information technologies are between \$1.0 and \$1.3 billion annually. This level of savings would yield a net reduction of 4.3% to 5.9% on Oregon's health expenditures.			
Others Contributors (foundations, governments)					
Theoretical Benefits					

Appendix B – Report of the Legal Work Group

Legislative Recommendations for Interoperable Health Information Exchange

December 29, 2007

Prepared by:
Michigan Health Information
Security and Privacy Collaborative (HISPC)
Legal Workgroup

Submitted to:
Michigan Health Information Technology Commission

Purpose and scope

The Legal Workgroup is part of two larger projects: the Health Information Privacy and Security Collaboration (HISPC) consisting of a multidisciplinary team of experts in privacy and security law and healthcare management addressing variations in state laws that affect privacy and security challenges to interoperable health information exchange; and the Michigan Health Information Network (MiHIN) Resource Center, which supports the State's role as convener and collaborator for HIE initiatives, including the development of Regional Health Information Organizations (RHIOs), along with inter-regional data exchange.

The Legal Workgroup consists of several dedicated volunteers from across the state. Many of these volunteers were originally part of the MiHIN Conduit to Care project, previously challenged to help answer legal questions arising from HIE development. The State of Michigan is extremely fortunate to have such a committed group. These diligent volunteers have been willing to travel, donate their time and perhaps, most importantly bring their expertise, professionalism and knowledge to this process. Without their dedication and commitment to the ongoing development of HIE in the state of Michigan, this project would not have been successful.

The participation of the Legal Workgroup in this process has given the State of Michigan an advantage in that critical stakeholders (and arguably leaders in the legal areas of HIE development) the ability to vet and collaborate on critical issues affecting HIE. The Legal Workgroup, under the guidance of Denise Chrysler and Margaret Marchak, held three meetings. Our final meeting was conducted in Brighton, where we were able to use a facilitator, provided to us through the HISPC project, to reach our final recommendations.

Legal Workgroup Process

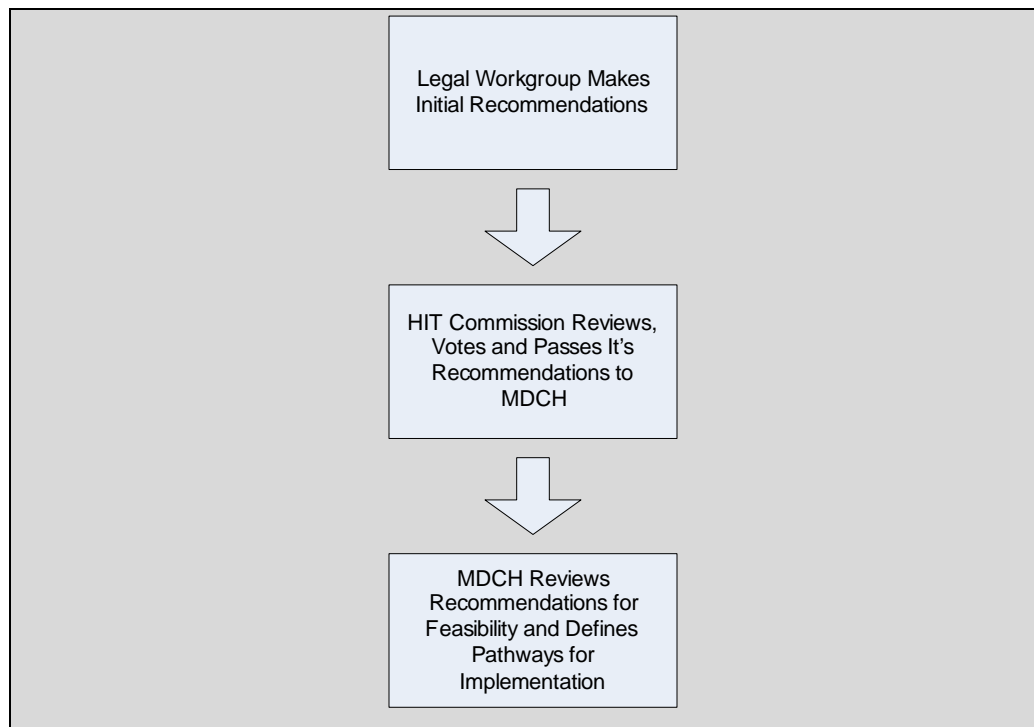
The Legal Workgroup started with the MiHIN HIE Legislation Plan Matrix (Matrix), developed utilizing the MiHIN *Conduit to Care* report. During the MiHIN project, the Legal Workgroup created the Overview of Michigan's Legal Framework for Health Data Release/Sharing—eleven pages of citations to relevant Michigan statutes, court rules, administrative code rules, case law and Attorney General opinions relating to the privacy of health data. The Matrix distilled the most relevant statutes into categories based on subject matter most affecting HIE in Michigan. The Legal Workgroup's primary goal was to review the Matrix and develop a "top ten" list of priorities to be addressed by the State in order to facilitate HIE.

Legal Workgroup Scope

The scope of the Legal Workgroup was limited to: determining the areas of Michigan Statutes' needing to be changed; creating an ordered short list of those priority areas of law based on the need for action; and drafting a subsequent position paper detailing those priorities and the reasoning behind them.

In addition, while the scope of the Legal Workgroup meetings included determining "the what", in regards to what areas of Michigan Law need action, the scope did not include determining "the

how”, in regards to how the State should make the recommended changes. It was decided early on in the process that the Michigan Department of Community Health, through well-established processes would ideally be tasked with defining how the various recommendations would most effectively be implemented.



Legal Workgroup Matrix – Ranking Methodology

The MiHIN Plan for Michigan HIE Legislation is based on the previous work done by the HISPC Legal Workgroup in conjunction with the MiHIN project. In this second phase of the project, we asked that Legal Workgroup participants rank each of the subject matter areas based on the ranking methodology listed below. The Workgroup systematically worked through and ranked the subject matter areas based on the methodology, which encompassed three areas of measurement: impact, need for timely action and the ease of reaching consensus among stakeholders throughout the state.

In order to establish a level perspective, we asked that the Legal Workgroup participants accepted (for purposes of this ranking process only) the following assumptions:

- Full implementation of HIE is inevitable over time
- All clinical information will be available to clinicians at point of care.
- No secondary uses of the data will be permitted

Below are the detailed three areas of ranking measurements used by the Legal Workgroup (A- *Impact on HIE Development*, B- *Need for Timely Action*, and C- *Ease of Reaching Consensus*) used to rank each subject matter item listed on the Matrix. Throughout the process, the participants indicated the corresponding number (shown on the left of the items listed below) on the Matrix to indicate how they ranked each area. We then added A, B, and C, averaged them and this became the comprehensive score for each subject matter area.

A. Impact on HIE Development

The state of Michigan has targeted HIE Development as one of its goals in regards to improving healthcare. How will the implementation or lack thereof of the subject matter effect the progress of HIE development?

1. Insignificant- will have almost no impact on HIE development if implemented
2. Minor- will have some small effect on HIE development
3. Significant- will result in a tangible effect, albeit small in scale on HIE development
4. Serious- may have considerable effect on HIE development across the state
5. Critical- will have extensive and wide-ranging effect on HIE development across the state

B. Need for Timely Action

How does the subject matter fit in to Michigan's timeline for HIE implementation? Is the subject matter area one that requires immediate action? Or is it something that can wait a few years to be addressed? For example: electronic inter-HIE communication is likely not to occur for 3-5 years, so there is not a need for immediate action; conversely, the implementation of Electronic Medical Records (EMRs) is currently underway for many HIEs, so action in regards to laws affecting EMRs would be needed immediately or soon.

1. No action needed
2. Action needed in 4-5 years
3. Action needed in 2-3 years
4. Action needed in 6 months to a year
5. Immediate action

C. Ease of Reaching Consensus

How difficult (or easy) will it be for the State to reach consensus among Michigan's stakeholders in order to implement HIE development (and remove existing barriers) as it relates to the subject matter?

1. Impossible- Consensus unlikely
2. Very Difficult
3. Difficult, but possible
4. Requires Discussion, but Consensus likely
5. No barriers – Consensus achieved

Summary of Legislative Recommendations

Recommendation #1 – Recognize federal Stark amendments through 2007 and update Michigan physician disciplinary law under MCL 333.16221.

Discipline may be imposed upon physicians who make referrals in violation of the Stark law unless a permitted exception exists as promulgated through 2002 according to MCL 333.16221(e)(iv)(B). The Stark regulations have been amended since 2002 and specifically, in 2006, the regulations were amended to permit donations of technology to physicians by certain entities, including hospitals.

As stated in MCL 333.16221(e)(iv)(B), MDCH is required to take make a decision as to “whether or not the revision pertains to referral by physicians for designated health services and continues to protect the public from inappropriate referrals by physicians. If the department decides that the revision does both of those things, the department may promulgate rules to incorporate the revision by reference.” If there are inconsistencies between federal and state physician referral laws that have not been reviewed by MDCH, such inconsistencies may have an unintended chilling effect on technology donations from hospitals to physicians, thereby acting as a barrier to the adoption of HIE.

All of the participants of the Legal Workgroup expressed a desire for Michigan to update its physician referral law to be consistent with the Stark Amendments. This recommendation was found to be significantly necessary. Several of Michigan’s health law attorneys have requested that MDCH recognize Stark II based on language in 333.16221.

If section 1877 of part D of title XVIII of the social security act, 42 USC 1395nn, or a regulation promulgated under that section is revised after June 3, 2002, the department shall officially take notice of the revision. Within 30 days after taking notice of the revision, the department shall decide whether or not the revision pertains to referral by physicians for designated health services and continues to protect the public from inappropriate referrals by physicians. If the department decides that the revision does both of those things, the department may promulgate rules to incorporate the revision by reference. If the department does promulgate rules to incorporate the revision by reference, the department shall not make any changes to the revision. As used in this subparagraph, “designated health service” means that term as defined in section 1877 of part D of title XVII.

In addition, the Legal Workgroup recommends that MDCH review federal Stark and Anti Kickback laws on a regular (annual) basis to ensure that Michigan’s physician referral law remains compatible with to federal law.

Finally, the Legal Workgroup recommends that when an interim period exists between federal amendment or enactment of updated or new Stark or Anti-Kickback laws and the time that MDCH has the opportunity to review and decide whether or not the revision pertains to referral by physicians for designated health services and continues to protect the public from inappropriate referrals by physicians recognized the updated federal law, the state would not take any disciplinary action against any physician who may be acting in contradiction to the Michigan physician referral law that is not harmonious with the new or updated federal law, but has not yet reviewed by MDCH. (It was also noted that an anticipatory change in federal law cannot be incorporated into Michigan statutes by reference.)

Recommendation #2 - Establish minimum administrative, technical and physical safeguards for privacy and security in HIE for participants.

Such standards do not currently exist in state law. While there are applicable standards under federal law (HIPAA, FERPA, etc.) HIE entities may not be covered entities under HIPAA or may not fall into categories covered by other federal laws and standards. Stakeholders, including participants and consumers will expect minimum standards for privacy and security in order to build trust in HIE. All entities participating in an HIE should be held to, at a minimum, a nationally recognized privacy and security standards.

Recommendation #3 - Identify the types of individuals/entities to be granted access to the protected health information in HIEs.

As a trust building measure, the type of entities or individuals who may access the protected health information stored in the HIE, e.g., licensed or certified healthcare providers should be clearly established. The registered user or licensed provider should be held accountable for actions of those employees and staff granted access on their behalf. Further, access should be permitted to volunteers and other specifically designated individuals (as is allowed currently with paper-based health information) with a need for access, who may not ordinarily have access to data held by the HIE, in times of an emergency declared by state government.

Recommendation #4 – Extend MCL 333.20201(2)(c) (Patients Rights and Responsibilities) to apply to all healthcare providers for the express purpose of treatment.

A patient or resident is entitled to confidential treatment of personal and medical records, and may refuse their release to a person outside the health facility or agency except as required because of a transfer to another health care facility, as required by law or third party payment contract, or as permitted or required under the health insurance portability and accountability act of 1996, Public Law 104-191, or regulations promulgated under that act, 45 CFR parts 160 and 164.

Such uses and disclosures are permitted to health care facilities in MCL 333.20201(2)(c). Health care facilities are defined in the Public Health Code under 333.20201(2)(c) but do not include licensed professionals, including physicians, or other health care providers, such as home health agencies and hospice. All providers should be afforded protection to share information for treatment which is critical to HIE. Current uses/disclosures as set forth in HIPAA may be adopted or extend the uses and disclosures permitted in MCL 333.20201 to all health care providers, not just health facilities. Additional uses/disclosures may be contemplated at another time as policy develops.

Recommendation #5 – Establish Informed Opt-out as the method of consumer control of how their protected health information becomes part of the HIE.

Establish Informed opt-out (Opt out with the additional requirement of providing information regarding the impact and possible consequences of a patient opting out of participating in the HIE) to provide for consumer privacy while facilitating adoption of HIE. The precedence for this is the opt-out approach taken by MDCH for use with the Michigan Care Improvement Registry (MCIR). (While MCIR is a successful example of the opt-out process, it should be noted that MCIR, until recently has been limited to the immunization data of children.

It should also be noted that historically there has been a very pervasive federal push for the collection and reporting of childhood immunization data.) In addition to the informed opt-out provision, in the case of an HIE, consumers should be counseled or appropriately educated on the potential risk they face by omitting health information from providers and the limitations to how their data will be used/disclosed. Under the opt-in approach, healthcare providers participating in the HIE would be required to obtain permission from patients before allowing their information to be available via the network. Without this permission, a patient's health information would not be accessible through the HIE.

This recommendation is coupled with Recommendation #6 to provide a complete continuum of consumer privacy protection.

Recommendation #6 – Provide sanctions for and enforcement over improper uses and/or disclosures of PHI in HIE.

There will be uses and disclosures that may not comport with the permitted uses and disclosures of PHI in HIE, some incidental and others may exceed this standard. An enforcement scheme by the State and resulting sanctions for such actions should be scaled to the severity of the breach/inappropriate use or disclosure. Different sanctions should be established for incidental, accidental, intentional and egregious actions.

Recommendation #7 – Clearly describe permissible uses and disclosures of special classes of PHI in HIE.

Michigan law provides special protection to certain types of health care information, e.g., certain reproductive health, HIV+ status, mental health and substance abuse treatment. Recommend that providers be permitted to access this information at the point of care to avoid adverse drug reactions and other quality of care issues. Exceptions to this would be for any federal protection, such as for 42 CFR Part 2 facility treatment.

Recommendation #8 – Consolidate Michigan laws affecting HIE to avoid inconsistency: There should be centralization of the laws affecting health information and HIE for consistency. There are myriad laws currently in Michigan in the Public Health Code and elsewhere about uses and disclosures of PHI. These should be made centralized and consistent for all provider types as appropriate.

Recommendation #9 – As part of HIE adoption guidance, uses and disclosures for HIE are permissible uses under HIT software licenses.

Some providers may experience conflict with software vendors that provide that their software be used for certain purposes that do not contemplate HIE. To permit those who wish to exchange electronic information in HIE, these software licenses may be a barrier by restricting use of the software. Such limitations, that have the effect of precluding HIE should be rendered unenforceable as against public policy for HIE purposes.

Recommendation #10 – Establish protections for HIE information from discovery:

All information available from the HIE is available from the original source and therefore, discovery of information in the HIE should be prohibited, similar to peer review protected information. All information related to legal action should be obtained from its original source. Entities hosting the HIE structure should audit use and disclosures of internal mechanisms to ensure proper use of HIE without fear of legal action.

Recommendation #11 - Provide exemptions from state taxes for HIE activities during the period covered by the planning and implementation grants: Financial viability of HIE entities is key to sustainability.

For a limited period of time, the state should ensure budget protection for HIE efforts through tax incentives. A lack of financial sustainability, which is often times related to weaknesses in the planning of governance and business structure, in conjunction with other issues, such as a lack of broad-based stakeholder and community buy-in, have been contributing factors of RHIO failure.

Conclusion

To effectively accomplish the goal of integrating electronic HIE in Michigan, the Legal Workgroup has reviewed the current legislative scheme, focusing on the areas that impact or present a barrier to the electronic exchange of health information, drafting eleven recommendations that it found to be the most critical for HIE development. It should be noted that while all of the recommendations will facilitate the development of HIEs in Michigan, there is currently no legislation that prevents the formation of HIEs in the State.

The HISPC Legal Workgroup, active since the MiHIN *Conduit to Care* Project, found that possible issues with current legislation or a lack thereof fall mainly into two categories: areas of law that are antiquated, in that they were drafted at a time when the electronic exchange of health information had not yet been contemplated or, laws in need of updating to be consistent with federal legislation regarding privacy and security of medical information in the event national health information exchange is achieved.

The Legal Workgroup focused on the eleven recommendations to remove barriers from HIE development, while ensuring the protection of the privacy and security of electronic health information. A key consideration for the Legal Workgroup was to support interoperability both for intrastate and interstate HIE development by promoting the building of infrastructure that is flexible. In order to encourage participation in regional initiatives by potential HIE participants; the State of Michigan has worked to facilitate consensus of legal opinion state-wide.

Appendix C – Report of the Technical Solutions Work Group

Recommendation to the Health Information Technology Commission By the MiHIN Technology Workgroup April 10, 2008

The MiHIN Technical Workgroup recommendation

The MiHIN Technical Workgroup (TWG) has been charged by the Health Information Technology Commission to recommend strategies in the identification management of Michigan patients and their records between MiHIN regions.

Three distinct options were identified, researched, and discussed by the TWG. These options included:

- **Option A** – The State takes a guidance-only role, and, as in all options, defines standards, specifications, and policy as required for inter-region, interstate and national coordination of HIE. This would be the default scenario if the State chose to do nothing. This option was *unanimously* rejected by the TWG because it places an undue burden on the regions to establish and maintain multiple communication channels. Additionally, this option is not compliant with the NHIN.
- **Option B** – The State adopts and implements a COMPLETE solution, All HIE transactions would use the central system to match records that the State would operate and maintain. This option was *unanimously* rejected by the TWG because, as described, it was determined to infeasible. As the discussion progressed, the TWG determined that this option is fundamentally a statewide RHIO, and that is not a practical solution for Michigan.
- **Option C** – The State operates a Record Locator Service (RLS) and only the inter-regional and interstate activity, as well as coordination with relevant State data sources would be handled by this State .

The TWG recommends that the State of Michigan adopt **Option C**. This option was *unanimously* chosen as the recommended choice by the TWG based on the following criteria:

- **Practicality** – This was deemed the most practical solution because it is the smallest role for the State that complies with the rest of the criteria.
- **Effect on the MiHIN regions** – This option maintains the preponderance of activity within each individual region, (i.e. the 90+% of healthcare transactions that occur completely within a region are handled by the region.) The State only assists with transactions from state-wide data sources

and transactions that involve an entity outside the region. This greatly simplifies the regions' role in inter-region and interstate activity.

- ***Compatibility with national efforts*** – This option is completely compatible with national initiatives.
- ***Scalability / usability / performance*** – This option will require the regions and state to work together to improve the accuracy of the MPI both at the regional and state levels. It provides the most efficient solution to inter-regional communication channel configuration.
- ***Governance*** – The governance structure required for this option mirrors the governance structure of the rest of the MiHIN and limits the State's role to coordination, facilitation and limited responsibility for HIE.
- ***Cost*** - Cost was not a driving force for or against this option. Calculating a reasonable estimate of cost is included in the "Next Steps".
- ***Implementation time*** – This option will not need to be implemented until at least two regions are functional.
- ***Implementation plan*** – This option allows for either MDIT, one of the regions or an independent entity to operate the state-level MPI under this option. (Please see "Next Steps" for recommendations for a comprehensive implementation plan.)
- ***Future options / Flexibility*** – This option provides the most flexibility for the State and the regions.
- ***Legal Issues*** – This option allows for the delineation of responsibility at the State and regional levels which facilitates clarification of legal responsibility.

Background

At the December 2007 Michigan HIT Commission meeting, the commissioners conducted a mapping exercise to determine their agenda for calendar year 2008. One of the topics determined to be timely and relevant for immediate consideration was to define the State of Michigan's role regarding MPI.

At the following meeting in January 2008, the HIT Commission charged the MiHIN Resource Center with reconvening the MiHIN TWG to craft a recommendation. The HIT Commission, in charging the TWG, adopted the following principles and issues:

Principles provided by the HIT Commission

A broad set of principles and policies adopted centrally by the State would provide necessary guidance to MiHIN as it addressed patient identification between regions. Example principles could include:

1. A centralized, statewide patient matching service should have a high degree of accuracy. The error rate should improve over time.
2. The MiHIN patient identification system needs to be forwardly compatible with national efforts under NHIN.
3. A MiHIN patient matching system must be available and functional by the time multiple HIEs are operating in the State.
4. The MiHIN regions must be involved in the development of a technical solution.
5. The MiHIN patient identification system must be able to connect with state government systems such as MCIR and MDSS.

Once core principles concerning patient identification are established, a technical workgroup composed of HIE regional representatives, major health plans, state administrators and other pertinent stakeholders would be able to use them to develop the MiHIN system.

Considerations provided by the HIT Commission

Before a statewide MPI can be designed and implemented a number of issues should be addressed. Below is a non-exhaustive list of issues, in no particular order that a technical workgroup will address:

- Should one solution be done centrally statewide or should the state set policy to have each region use the same solution? What is the cost, organizational, social and political factors in each approach?
- By definition, if each patient is assigned a unique number, how visible will that number be? Will that number be utilized only within the system and invisible to users, or will users be able (or encouraged) to adopt it? If the ID number is made available, would there be any limitations on how it can be used?
- Should the MPI be robust or minimalist in the data that it stores? The more robust the data set, the better the system can perform deduplication and the more useful it can be in facilitating

information exchange between HIEs. The more limited the database, the less likely people will fear misuse of the data.

- How will the data in the system be pre-populated? Will existing statewide systems form the core of the database, or will it start out essentially empty and grow over time? Should the State populate the system with birth records?
- What rules and/or policies will need to be modified in order to implement a statewide MPI? For example, would MCIR rules permit an MPI to be populated with patient records from the registry?
- Can users “browse” the index or is a unique match required? That is, will the MPI return multiple possible matches to a query, or will the user be prompted to enter additional information until a unique patient is identified? This affects how “loose/tight” deduplication can be, resulting in either better matches, and/or fewer false matches.
- Will the MPI return additional identifying information to the user? That is, will other systems be able to copy information out of the MPI to populate empty fields in their own database? Or will the MPI only store, but not report, identifying information?
- Are specific identifiers required in order to match? For example, will the user be required to submit some minimum of information (such as name and birth date) in order to retrieve information?

The MiHIN Technical Workgroup was reconvened during March 2008 and the result of their deliberation is included in this recommendation.

Principles developed by the Technical Workgroup:

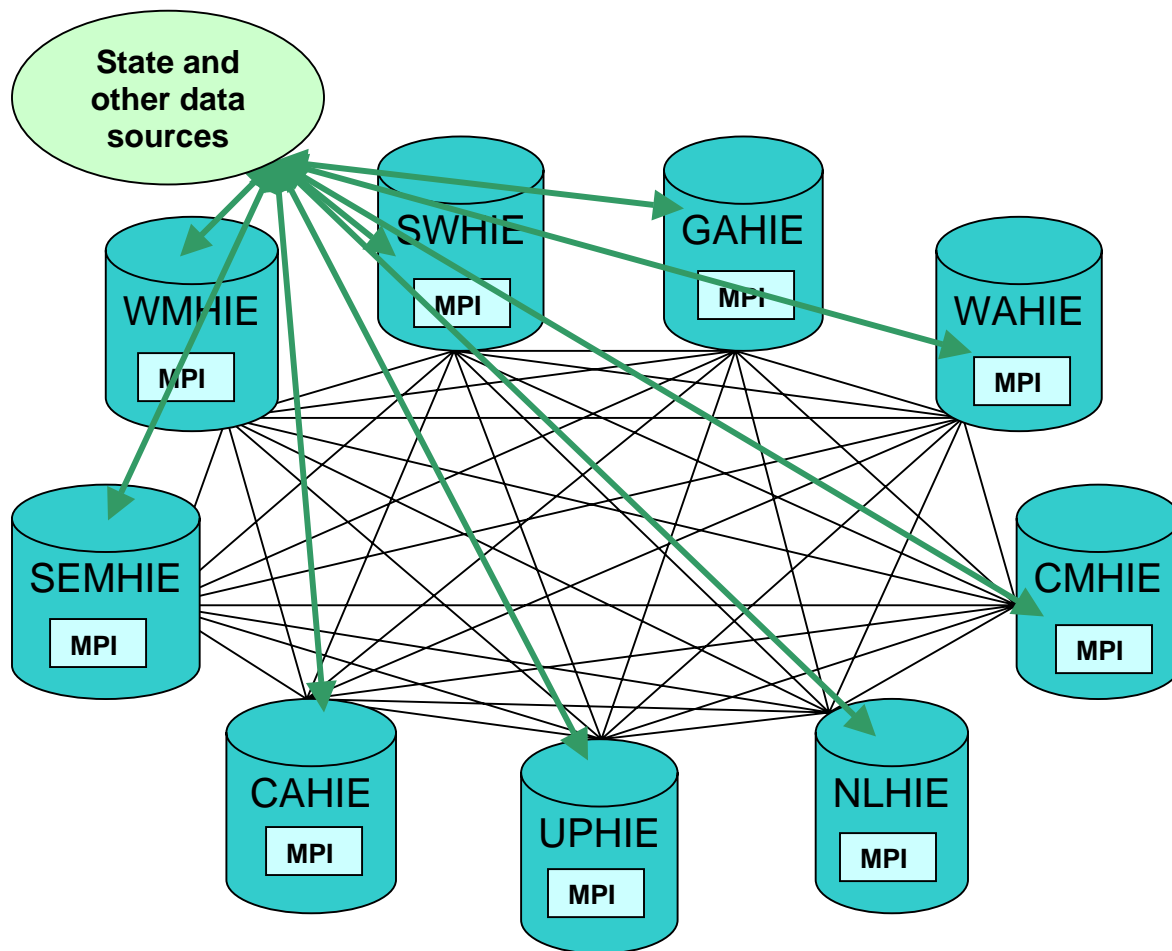
- The State of Michigan programs and systems will comply with any standards imposed on the regions.
- Communication methods between all entities must comply with nationally recognized standards, including the emerging requirement by the NHIN to have a single point of contact in each state.
- The overall degree of accuracy must be greater than 99% or no clinical data will be exchanged. False positives are not acceptable.

Considerations developed by the Technical Workgroup:

- Only Demographic Data is used to determine MPI. Data fields most commonly used to determine patient identity include:
 - Name
 - Mother’s Maiden Name
 - Address

- Date of Birth
- Patient ID, (i.e. SSN, Medicaid ID, etc.)
- Driver's License/Real ID or State ID
- Gender
- Home Phone
- Mobile Phone
- The system will not create a Universal ID that is published and added to all the source systems. If an ID is created, it will be used internally (behind the scenes) only.
- Security and Privacy are included in other State initiatives and are outside the scope of this project.
- If there is any question regarding whether data belongs to a patient, the data will not be included in the patient information provided to the healthcare professional (i.e. False Positives are not allowed). This is no worse than the current state of the predominantly paper-based system that exists today.
- The State can adopt one option now and evolve into a different option over time. The purpose of this analysis is to determine the proper role for the State at this stage of development of HIE in Michigan.
- We are ahead of the national-level interoperability curve as no NHIN project is ready. We will monitor the progress at the national level and adjust our State implementation plans if necessary. All transmissions of data should conform to federal data standards where applicable.
- Standards must also be compatible with the CDC. The CDC is working in cooperation with the Office of the National Coordinator (ONC,) but any variances need to be included for consideration while developing technical specifications.
- Governance and policy guidance includes defining:
 - The minimum matching criteria
 - Benchmarks and evaluation criteria
 - Minimum accuracy levels
- The State will need to create a new function that is able to determine that the RHIOs in the state can maintain a minimum level of data quality levels, and only reliable, trusted, clean data sources is transmitted.
- The location of the original data, including the region needs to be included with any transmitted data.
- The final implementation plan should provide for stakeholder education.

Option A – State takes a guidance-only role, and, as in all options, defines standards, specifications, and policy as required for inter-region, interstate and national coordination of HIE. This is the default scenario if the State does nothing.



Evaluation of this Option:

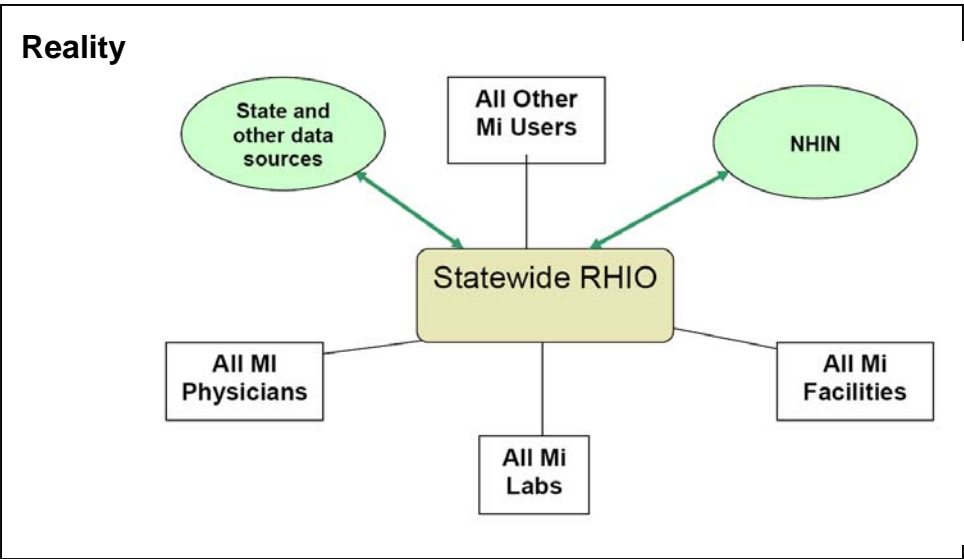
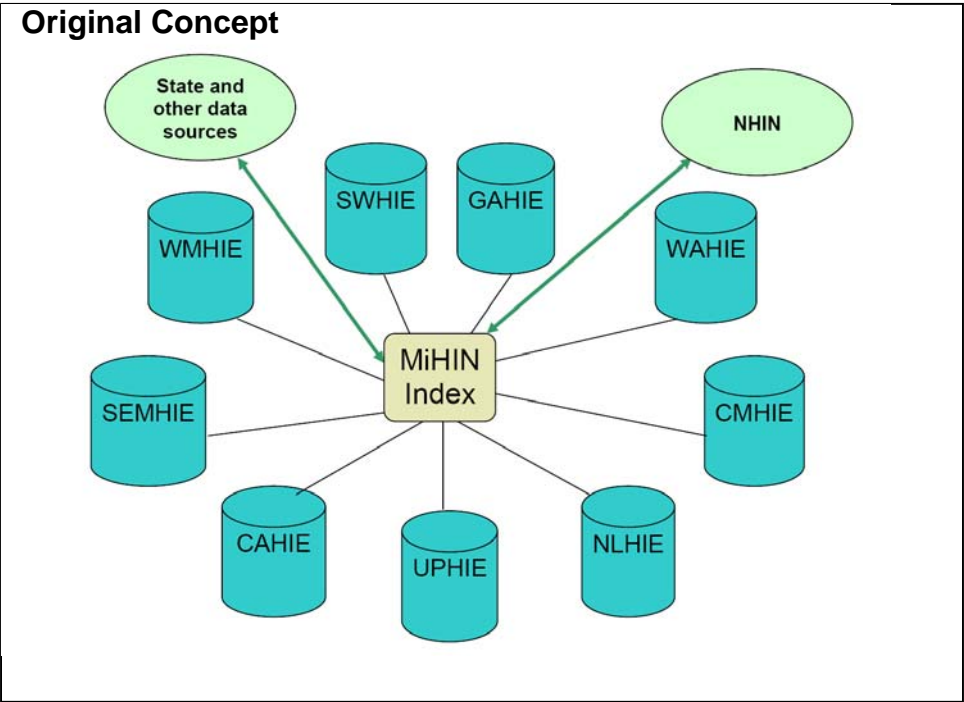
This option was *unanimously* rejected by the TWG because it places an undue burden on the regions to establish and maintain multiple communication channels. Additionally, this option is not compliant with the NHIN.

- ***Practicality*** – This option was deemed impractical because it requires the regions to all interconnect.
- ***Effect on the MiHIN regions*** – This option is expensive and cumbersome on the regions.
- ***Compatibility with national efforts*** – This option is not compatible with the intent of national initiatives expressed to date.

- ***Scalability / usability / performance*** – This option causes the most inter-region traffic and makes interstate traffic cumbersome.
- ***Governance*** – This option greatly complicates the governance structure
- ***Implementation time*** – The implementation timeframe would be completely dependent on the capabilities of the regions to establish communication channels with one another.
- ***Implementation plan*** – N/A
- ***Future options / Flexibility*** – This is the least flexible option and limits future options..
- ***Legal Issues*** – N/A.
- ***Cost*** - Cost was not a driving force in the decision between options. Calculating a reasonable estimate of cost is included in the “Next Steps”.

Option B – State adopts and implements a COMPLETE solution, All HIE transactions would use the central system to match records that the State would operate and maintain.

During the TWG deliberation, it was determined that this option becomes a statewide RHIO, since partitioning out a fundamental function, such as MPI from the regions effectively eliminates the need for regional systems.

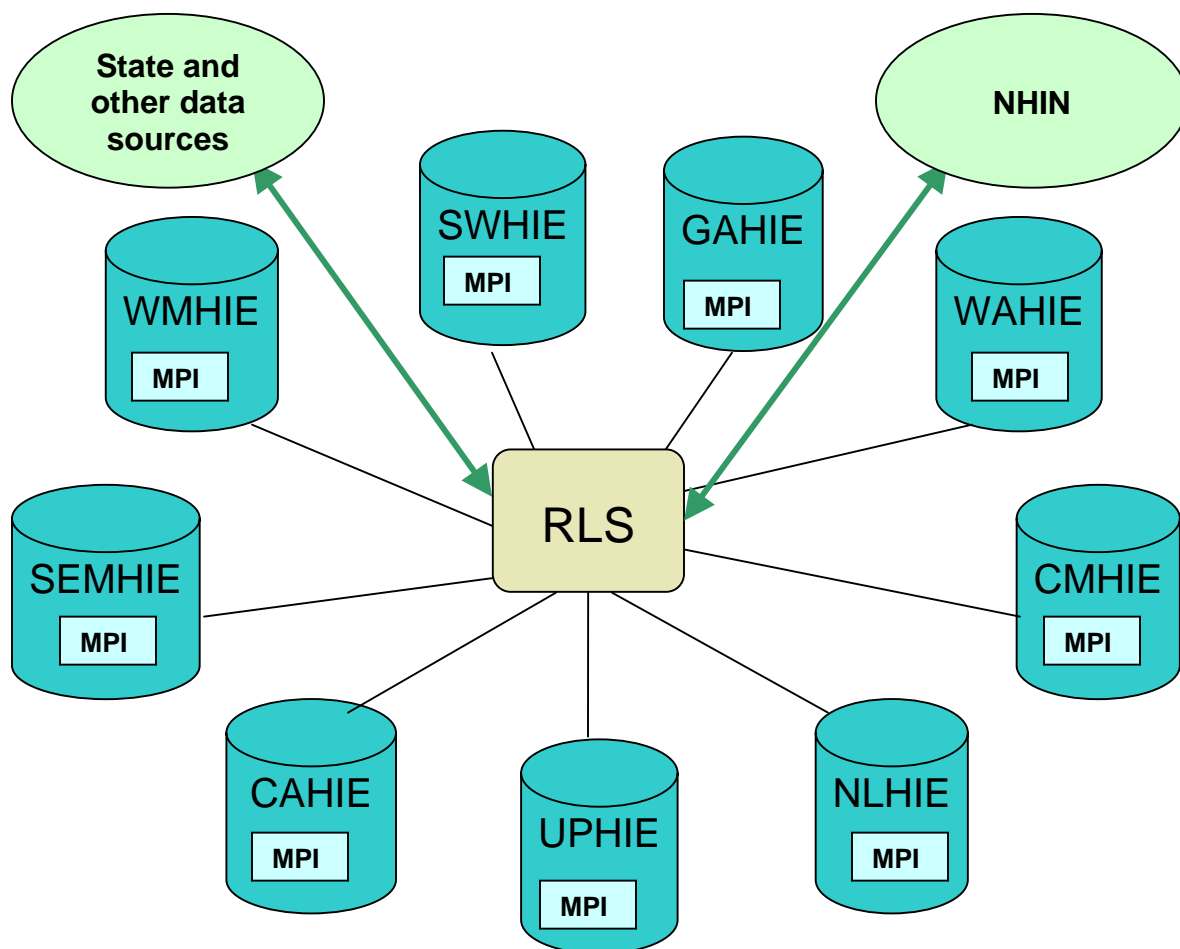


Evaluation of this Option:

This option was *unanimously* rejected by the TWG because, as described, it was determined to infeasible, and the ultimate reality of this option is not a practical solution for Michigan.

- ***Practicality*** – This was deemed impractical as originally conceived and inconsistent with the *Conduit to Care* for the Reality of this option..
- ***Effect on the MiHIN regions*** – This option effectively eliminates the regions.
- ***Compatibility with national efforts*** – This option is completely compatible with national initiatives.
- ***Scalability / usability / performance*** – This option would require the entire state to adopt the same solution and for the State to be responsible for statewide implementation..
- ***Governance*** – This option would require the State to establish a governance structure that would be supported by all stakeholders statewide.
- ***Implementation time*** – This option would require the State to implement this option as a governmental project, which could cause delays in implementation.
- ***Implementation plan*** – This would become a State-run implementation, which would require the establishment of a new function within MDCH which could manage and implement a statewide system
- ***Future options / Flexibility*** – This option would limit flexibility and future options if the governance structure requires consensus statewide.
- ***Legal Issues*** – This option would put the entire burden of risk with the State.
- ***Cost*** - Cost was not a driving force in the decision between options. Calculating a reasonable estimate of cost is included in the “Next Steps” Section.

Option C – State operates a RLS, This is a hybrid solution in which over 90% of the transactions are handled in the regional HIEs and only the inter-regional and interstate activity would be handled by the State RLS.



Evaluation of this Option:

This option was unanimously chosen as the recommended choice by the TWG based on the following criteria:

- **Practicality** – This was deemed the most practical solution because it is the smallest role for the State that complies with the rest of the criteria.
- **Effect on the MiHIN regions** – This option maintains the preponderance of activity within each individual region, (i.e. the 90+% of healthcare transactions that occur completely within a region are handled by the region.) The State only assists with transactions from state-wide data sources and transactions that involve an entity outside the region. This greatly simplifies the regions' role in inter-region and interstate activity.
- **Compatibility with national efforts** – This option is completely compatible with national initiatives.

- **Scalability / usability / performance** – This option will require the regions and state to work together to improve the accuracy of the MPI both at the regional and state levels. It provides the most efficient solution to inter-regional communication channel configuration.
- **Governance** – The governance structure required for this option mirrors the governance structure of the rest of the MiHIN and limits the State’s role to coordination, facilitation and limited responsibility for HIE.
- **Implementation time** – This option will not need to be implemented until at least two regions are functional. There may be value in implementing the solution sooner.
- **Implementation plan** – This option allows for either MDIT, one of the regions or an independent entity to operate the state-level MPI under this option. (Please see “Next Steps” for recommendations for a comprehensive implementation plan.)
- **Future options / Flexibility** – This option provides the most flexibility for the State and the regions.
- **Legal Issues** – This option allows for the delineation of responsibility at the State and regional levels which facilitates clarification of legal responsibility.
- **Cost** - Cost was not a driving force in the decision between options. Calculating a reasonable estimate of cost is included in the “Next Steps” Section.

Considerations provided by the HIT Commission:

Considerations provided by the HIT Commission	Option A	Option B	Option C
Should one solution be done centrally statewide or should the state set policy to have each region use the same solution? What is the cost, organizational, social and political factors in each approach?	<i>The State should create policies and guidelines in order to coordinate efforts. For this option, the State would have no implemented solution. We could find no compelling reason to require the regions to all use the same solution. The second part of this question is answered within the discussion for each option considered.</i>	<i>The State should create policies and guidelines in order to coordinate efforts. For this option, as we came to understand, there would only be one installed solution. The second part of this question is answered within the discussion for each option considered.</i>	<i>The State should create policies and guidelines in order to coordinate efforts. While this option allows for the possibility of the State negotiating a Master Agreement with a single vendor for use at the state and regions, this is not required. We could find no compelling reason to require the regions and the state to all use the same solution. The second part of this question is answered within the discussion for each option considered.</i>
By definition, if each patient is assigned a unique number, how visible will that number be? Will that number be utilized only within the system and invisible to users, or will users be able (or encouraged) to adopt it? If the ID number is made available, would there be any limitations on how it can be used?	<i>We do not recommend the creation of a Universal Patient Identifier that would be visible to all participants and possibly added to all systems participating statewide.</i>	<i>We do not recommend the creation of a Universal Patient Identifier that would be visible to all participants and possibly added to all systems participating statewide.</i>	<i>We do not recommend the creation of a Universal Patient Identifier that would be visible to all participants and possibly added to all systems participating statewide.</i>
Should the MPI be robust or minimalist in the data that it stores? The more robust the data set, the better the system can perform deduplication and the more useful it can be in facilitating information exchange between HIEs. The more limited the database, the less likely people will fear misuse of the data.	<i>We recommend that the standards set by the state specify the number and kinds of demographic identifiers which will be used to assure 99% accuracy and minimize the number of deduplications necessary. The deduplication process should correct the source systems as needed. Exactly how the matching algorithm works within the proposed solutions can be evaluated during the proposal selection process. We recommend the determination of outcomes rather than a predetermined process internal to the MPI system.</i>	<i>We recommend that the standards set by the state for the regions and the hub specify the number and kinds of demographic identifiers which will be used to assure 99% accuracy and minimize the number of deduplications necessary. The deduplication process should correct the source systems as needed. Exactly how the matching algorithm works within the proposed solutions can be evaluated during the proposal selection process. We recommend the determination of outcomes rather than a predetermined process internal to the MPI system. We further recommend no clinical information be stored at the State.</i>	<i>We recommend that the standards set by the state for the regions and the hub specify the number and kinds of demographic identifiers which will be used to assure 99% accuracy and minimize the number of deduplications necessary. The deduplication process should correct the source systems as needed. Exactly how the matching algorithm works within the proposed solutions can be evaluated during the proposal selection process. We recommend the determination of outcomes rather than a predetermined process internal to the MPI system. We further recommend no clinical information be stored in the State hub.</i>
How will the data in the system be pre-populated? Will existing statewide systems form the core of the database, or will it start out essentially empty and grow over time? Should the State populate the system with birth records?	<i>We recommend that existing state systems such as MCIR, payer systems and the existing regional systems' MPI be used to pre-populate the state MPI system.</i>	<i>We recommend that existing state systems such as MCIR, payer systems and the existing regional systems' MPI be used to pre-populate the state MPI system.</i>	<i>We recommend that existing state systems such as MCIR, payer systems and the existing regional systems' MPI be used to pre-populate the state MPI system.</i>

Considerations provided by the HIT Commission	Option A	Option B	Option C
What rules and/or policies will need to be modified in order to implement a Statewide MPI? For example, would MCIR rules permit an MPI to be populated with patient records from the registry?	N/A	<i>We could not determine any legislative restrictions regarding the implementation of a state MPI. We have included a step in the “Next Steps” section for a legal review. Since we are not recommending that any clinical data be stored in the hub, we do not see a legal issue for the MCIR. We do believe it will be useful to prepopulate regional repositories with clinical information such as immunization records from the MCIR and we believe regional repository data can be used to populate state clinical databases such as MCIR.</i>	<i>We could not determine any legislative restrictions regarding the implementation of a state MPI. We have included a step in the “Next Steps” section for a legal review of this option. Since we are not recommending that any clinical data be stored in the hub we do not see a legal issue for the MCIR. We do believe it will be useful to prepopulate regional repositories with clinical information such as immunization records from the MCIR and we believe regional repository data can be used to populate state clinical databases such as MCIR.</i>
Can users “browse” the index or is a unique match required? That is, will the MPI return multiple possible matches to a query, or will the user be prompted to enter additional information until a unique patient is identified? This affects how “loose/tight” deduplication can be, resulting in either better matches, and/or fewer false matches.	<i>We recommend a complete match in order to send clinical data. We further recommend that the regions create a “resolve queue” resolution process that would identify any potential duplicates and correct the source data systems to eliminate the duplicates.</i>	<i>We recommend a complete match in order to send clinical data. We further recommend that the state create a “resolve queue” resolution process that would identify any potential duplicates and correct the source data systems to eliminate the duplicates.</i>	<i>We recommend a complete match in order to send clinical data. We further recommend that the state and the regions create “resolve queue” resolution process that would identify any potential duplicates and correct the source data systems to eliminate the duplicates.</i>
Will the MPI return additional identifying information to the user? That is, will other systems be able to copy information out of the MPI to populate empty fields in their own database? Or will the MPI only store, but not report, identifying information?	NA	<i>We recommend that regions determine if the demographic information used at the state level MPI would be useful to individual providers. Since an exact match is recommended, we believe that the providers will need to have correct and current information prior to using the MPI.</i>	<i>We recommend that regions determine if the demographic information used at the state level MPI would be useful to individual providers. Since an exact match is recommended, we believe that the providers will need to have correct and current information prior to using the MPI.</i>
Are specific identifiers required in order to match? For example, will the user be required to submit some minimum of information (such as name and birth date) in order to retrieve information?	<i>We recommend that the State, as part of the policy development process determine a minimum dataset in order to facilitate a fully functional state-level MPI.</i>	<i>We recommend that the State, as part of the policy development process determine a minimum dataset in order to facilitate a fully functional state-level MPI.</i>	<i>We recommend that the State, as part of the policy development process determine a minimum dataset in order to facilitate a fully functional state-level MPI.</i>

Next Steps:

State workgroup(s) should be convened to develop recommendations for:

- Determining any policy issues that need to be clarified
 - Uses by non-clinical stakeholders
 - The process to update demographic throughout the system
- Implementing standards and policies that define the execution, coordination and use of an MPI at the regional and the statewide RLS
- Conducting a legal review to determine if there are any restrictions to implementing a State MPI as defined
- Determining request for Information criteria and content
 - Develop list of potential vendors
 - Criteria for responses that include, but are not limited to:
 - Description of the implementation process, including timeline
 - Training plan
 - Technical specifications
 - Network plan
 - Hardware requirements
 - Software requirements
 - Infrastructure plan
 - Data Requirements
 - Estimated costs
 - Integration of State Databases
 - Business criteria
 - Previous related history
 - Financial stability
- Issuing the RFI
- Reviewing RFI responses to determine request for proposal criteria and content
 - Review options and technical specifications
 - Develop a conceptual budget that includes any staffing, software, hardware, training and implementation costs
 - A conceptual timeline that includes pertinent regional milestones
 - Determine scoring criteria
- Developing list of potential vendors to receive RFP
- Determining. criteria for regional certification

Appendix D – Notice Of Privacy Practice Language

Proposal to Implement the MiHIN Informed Opt-Out Policy for Consumers

Background

The MiHIN legal workgroup, combined with a Health Information Security and Privacy Collaboration (HISPC) presented a list of recommendations to the Health Information Technology Commission at its December 13, 2007 meeting. Among the recommendations the commission adopted was the idea to “establish informed opt-out as the method of consumer control of how their protected health information becomes part of the HIE.” Similar policies are used by the Michigan Care Improvement Registry (MCIR) and by other health information exchanges across the country.

The challenge then became to find the best means to implement the policy. Since providers and insurers routinely distribute “Notice of Privacy Practices” (NPP) as required by HIPAA, one suggestion was to use this document as a vehicle to inform consumers about MiHIN and their right to “opt out” (essentially block download of their protected health information). A Privacy and Consent work group was convened by the MiHIN Resource Center in summer 2008 to discuss this idea and the proposed NPP language. A representative group of consumers, medical professionals, privacy officers, regional representatives, and attorneys participated. During the September 2008 meeting HIT Commission, members discussed the informed opt-out process and asked the Resource Center staff to explore the issue further. Participants in an October meeting that included attorneys representing two of the stakeholder groups on the commission refined this idea further.

Proposal

The outcome of this process is a proposal to implement the informed opt-out process through a simple statement in the Notice of Privacy Practices (NPP) used by participating organizations and through the distribution of consumer education materials. Parties exchanging protected health information through a MiHIN health information exchange will be asked to include statements such as the one below in their NPPs and other appropriate documents:

Sample Language for Notice of Privacy Practices

“This organization participates in the Michigan Health Information Network (MiHIN). For more information about MiHIN and your right to limit the display of your protected health information to other MiHIN participants, please see www.mihin.org, call 1-800-XXX-XXXX, or write to MiHIN, P.O. Box XX, Lansing, MI 488XX.”

The Resource Center will create and update consumer education materials using the suggestions from the privacy and consent workgroup and other key stakeholders. Originally we had proposed to include more extensive language in the NPP, but after further discussion it became apparent that this might not have the desired effects because 1.) consumers rarely read NPPs and 2.) any material changes to NPP language might prompt legal review by participating providers and lead to inconsistent language adoption across the state. By keeping the notice simple and creating separate consumer communications, MiHIN will have the flexibility to adapt messages as necessary. One suggestion that came out of the privacy and consent work group, for example, was to create education materials and consent forms for consumers of community mental health services. We are following up on this suggestion and hope to pilot it in the CARHIO region.

The Resource Center has also been organizing an internal State of Michigan work group to examine the implementation of a master patient index / record locator service (the “MiHIN Hub”) to connect the nine MiHIN regions to each other, state government systems, and possibly other sources. We propose that the hub include a consent management database to identify consumers who have opted-out. More detailed procedures still need to be determined, but if the concept is approved it will help both the state and the MiHIN regions to anticipate the process with their vendors and health information exchange participants.

Appendix E - Michigan's Health Information Exchange Strategy

Michigan's Health Information Exchange Strategy



JUNE 2008

Introduction

President Bush's 2004 executive order for a national coordinator and plan to "provide leadership for the development and nationwide implementation of an interoperable health information technology infrastructure to improve the quality and efficiency of health care" sparked a new wave of public and private efforts to modernize the health care industry through information technology. Although few would dispute the general goals of reducing costs, improving quality, and minimizing medical errors, little consensus exists on the best approach to construct this infrastructure or even whether to begin on the state, regional, or local levels.

While the federal government has largely concentrated on developing national stakeholder organizations, standards, demonstration projects, and solutions to its own IT problems (connecting the DOD and VA health systems for example), most of the cutting edge activity is taking place at the local and state levels. Models vary in scale and emphasis, however. Some have developed dedicated clinical results delivery networks. Others have piggybacked on existing administrative networks (used for billing and other business functions) to display claims information or transmit limited clinical data. Some regional and state projects have started building the infrastructure by promoting, and often subsidizing, the adoption of electronic medical records and their interconnections as a first step. Other projects have started with consumer-centric media such as personal health records or health banks, on the theory that consumer demand for a composite electronic record source will force the health care industry to adapt.

Michigan's effort, through the Michigan Health Information Network (MiHIN), has concentrated on the development of electronic health information exchange (HIE) as a first step. HIE networks have the most potential to deliver the earliest broad-based results and drive the adoption of other health information technologies. Before explaining this strategy in detail, however, it is useful to review a few concepts and definitions .

Concepts and Definitions

Health Information Exchange (HIE); Regional Health Information Organization (RHIO). The National Alliance for Health Information Technology (NAHIT), a federal government initiative sponsored by the Office of the National Coordinator, recently released another draft report from its definitions project. It distinguishes HIE as a verb ("The electronic movement of health-related information among organizations according to nationally recognized standards") from the idea of a RHIO as a noun ("A health information organization that brings together health care stakeholders within a defined geographic area and governs health information exchange among them for the purpose of improving health and care in that community"). It also, curiously, created a third definition for a health information organization ("An organization that oversees and governs the exchange of health-related information among organizations according to nationally recognized standards") as a catch-all for non-geographically based groups.

In Michigan and other parts of the country, the term “HIE” is often used synonymously with “RHIO.”. More importantly, the federal definitions leave wide interpretations to a number of other projects that, however important, fall far short of the scale and comprehension needed for an HIE to realize its goals. The Michigan HIT Commission noted an earlier NAHIT definition and further specified that HIE “is characterized by (a) the exchange of clinical data and some forms of administrative data such as demographic and eligibility information, (b) across organizations and a broad base of health care participants that (c) encompasses a broad population base and (d) covers a broad array of clinical information. The delivery of comprehensive clinical information in a timely manner to providers at the point of care is the key HIE activity that creates societal value.” Projects that do not involve a critical mass of clinicians or remove barriers to clinical data availability are unlikely to measurably improve health care delivery in a community.

Electronic Medical Records (EMR): According to NAHIT, an EMR is “An electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization.” EMRs were first developed in the 1960s at the University of Vermont and the Mayo Clinic, and implemented in the 1970s and 80s. National surveys have indicated a slow adoption rate, however. In 2006 (the latest year available) only 12.4 percent of office-based physicians reported using comprehensive EMR systems. Although partial and hospital-based use is higher, the relatively slow adoption rate can be attributed to many factors. The financial costs of implementing and maintaining EMRs are uneconomical for many small practices. Although EMRs are superior storage and analytical tools, they generally are not communication devices. (Some have claimed the “E” in EMR stands for “empty.”) Information must be hand-entered into them or delivered through a multitude of electronic sources, most of which are not interoperable with each other. Sometimes, even different product lines or generations of EMRs offered by the same company are not compatible with each other. Generally, custom interfaces from each data source must be built in order to transfer data under the current system. As HIEs activate, only one interface will be needed for the EMR to connect with all other HIE members.

Electronic Health Records (EHR): NAHIT defines an EHR as “[a]n electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization.” Sometimes this term is used more generically, but a key idea in the HIE sphere is that the EHR can be aggregated from multiple sources and made available in consolidated form at the point of care. For example an EMR may only contain the prescription information from one practice or health system in its medication history window while an EHR offered by a RHIO can gather data from multiple sources or preferably tap into national pharmacy databases such as SureScripts (retail pharmacies) and / or RxHub (pharmacy benefit management companies) to fill its medication history window with more complete data.

Since the latter sources are based on fill files and not just prescriptions, they are even more accurate indicators of consumption.

Personal Health Records (PHR): The NAHIT definition is “[a]n electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual.” In practice, however, many PHRs depend on consumer input of data and even if they draw from multiple sources (some insurance companies, medical practices, and retail chains offer them as services) may not be complete or reliable. Treatment providers are often wary of relying upon consumer-controlled information for treatment purposes. Consumers may not want some information to first appear to them in a PHR. A positive cancer diagnosis, for example, might best be shared in person where counseling services are available. PHRs will continue to evolve as significant tools for personal health care management and (as the *MiHIN Conduit to Care* report anticipates) may be offered as HIE services. They will not satisfy the need for providers to exchange information with each other, and will remain as incomplete as EMR without the reliable and comprehensive data feeds that HIEs will provide.

Health Record Banks: Two authors have proposed that

“... health record banks will become the warehouses for all health data. These multi-use shared repositories will have common interfaces for receiving and transmitting data, use similar types of storage, and offer comparable services. In many ways, this type of repository will function like today’s banks. Consumers (as well as health organizations and health related businesses) will maintain different types of accounts, allow certain institutions (doctors, clinics, hospitals, etc.) automatic read or deposit access to their accounts, receive dividends for storing records in the bank and allowing access to de-identified health data (i.e., data with personal information such as names and social security numbers removed), and will have the ability to change banks, if so desired.”

A few community health infrastructure initiatives are experimenting with the health record banking concept. They face significant new infrastructure and business arrangements as they attempt to encourage providers, consumers, and other sponsors. Health record banks may be challenged to grow on a scale that captures a sufficient amount of medical activity for treatment purposes. A large volume of care may be delivered outside the local communities sponsoring them, for example. Consumers have a high degree of control in the banking model, but also high degrees of management and financial responsibility. Most HIE projects in contrast, seek to supplement and connect existing IT networks and concentrate on the involvement of providers and payers as a first step. HIEs will eventually develop repositories, PHRs, and other functions of health record banks, but do not begin with the consumer or repository phases.

Michigan HIE

Michigan's health information technology infrastructure strategy, initiated in the *Conduit to Care* multi-stakeholder process and validated by subsequent MiHIN activities, stresses regional health information exchange as the most direct path to measurable quality and efficiency improvements. Michigan's HIEs will enable comprehensive electronic communications and connections to existing and emerging sources of clinical data. The first phase is automation of a clinical messaging system that electronically delivers lab results, discharge summaries, radiology reports, encounter information, physician notes, and other currently documents delivered by mail, fax courier, or other traditional means. Clinical messaging can also incorporate referrals, consultations, orders, and other interactive communications.

A subsequent (or simultaneous) phase will make EHRs available to clinicians at the point of care. These EHRs will become more robust and useful as the HIE-delivered clinical transactions, electronic provider records, and other data sources (such as the prescription histories mentioned above, public health records or insurance databases) become connected. EHRs are necessary, for example, for Emergency Department clinicians to view allergies, medications, and treatment histories of new patients. As the HIEs grow in volume and sophistication, they will be able to amass population-level clinical databases with the potential to perform public health, quality and academic analyses, supplementing research already occurring with more robust sources of clinical information than currently available.

MiHIN's phased approach allows providers to adapt their management practices or IT systems to services offered by the HIEs. Providers who currently receive communications by fax machine will have the option of continuing to do so. Those with Internet connections, but not EMRs, will have the option of secure web-based programs offering everything from simple clinical "in-boxes" of results to network-based EMRs offered remotely by the HIE as an application service provider (ASP) model. Some vendors have term these "EMR Light" products. Practices with existing EMRs need only to build a single interface with the HIE – rather than to each lab, provider, hospital, and other data source. The wide availability of electronic health information from a single source and lower interface costs will promote EMR utility and adoption, just as the popularity of the Internet spurred the adoption of personal computers in many offices. Workflow practices need not change (doctors will still be able to have staff print reports rather than view computer screens themselves) but the opportunities to increase productivity will increase. Staff time currently spent on tracking down lab results or compiling paper charts could be deployed elsewhere, for example. Practices will also have an increased ability to take advantage of record-intensive quality improvement activities, such as pay-for-performance and disease management programs.

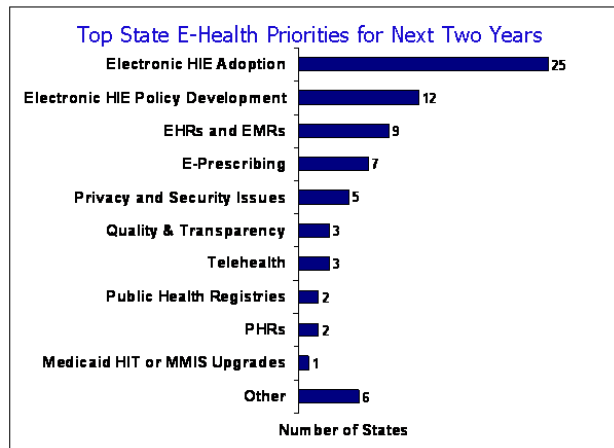
The scale of the MiHIN infrastructure is important. The regional boundaries of the MiHIN contain medical trading areas (MTAs) that collectively cover the entire state yet reflect regional health care economies. The regions are large enough to capture MTA activity, economies of scale, and critical mass. They are also small enough to promote

the cooperation and trust necessary to exchange information across organizational boundaries. As HIEs develop in each of the nine identified MiHIN regions, the state will play a role in connecting them to each other and to other states through the National Health Information Network (NHIN) envisioned by the federal government. Before having a national or even statewide impact, however, the benefits of HIE must be realized in the local regions where most care is delivered.

Public Investment in HIE vs. EMRs

States such as Michigan need to determine the optimal use of their limited resources to invest in health information infrastructure. One common debate concerns the relative merits of public investment in HIE compared to EMRs. Regionally-based HIE networks that are broad-based, open to all health care providers, and dedicated to the distribution and aggregation of clinical information for treatment purposes serve a public utility function. Public investment in HIE projects can yield social dividends in the widespread effects of fewer errors, reduced duplication, and more completely informed decision making. Operational costs for typical HIE on the scale of the MiHIN regions can cost between \$1.7 to \$2.5 million a year. A State of Michigan annual budget of \$5 million, for example, could support several HIE planning and implementation projects.

The benefits of EMRs, in contrast, primarily begin to accrue at the organizational level. One study estimated the average cost of an EMR to be \$33,000 per physician (plus maintenance costs approaching \$1500 per month). A budget of \$5 million would purchase EMRs for roughly 151 physicians. Since Michigan has over 27,000 active licensed physicians, the state would have the difficulty of selecting the few beneficiaries if it were to use its budget on a grant program. Pilot studies would yield little new information, since EMRs have been on the market for many years. EMR costs, benefits, and adoption hurdles have been well studied and documented. Since the private investment experience in EMRs has been mixed, it is unlikely that public investments would produce better results. For this reason, HIE adoption and policy development top the priority list for most state government electronic health initiatives, as noted in a recent Commonwealth study.



Source: The Commonwealth Fund and National Governors Association E-Health Survey, conducted by Health Management Associates, 2007.

Conclusion

A single approach to constructing an interoperable health care information infrastructure has yet to universally prevail in the United States. Despite a few local models of failure and success, most efforts are preliminary, experimental, and reflective of local conditions. The prevailing strategy in Michigan of concentrating on regional HIE has emerged from a multi-stakeholder process beginning with the *Conduit to Care* process in 2006 and continuing with the MiHIN planning, implementation, and resource center grantees. Those actively working with MiHIN continue to learn from the experience of other RHIOs across the country while wrestling with local issues. The most critical challenge to modernizing the Michigan health care industry is developing an interoperable network of health care providers that will help EMRs, PHRs, health record banks, community repositories and other infrastructure components achieve their potential rather than building EMR capacity at the practice level or PHR capacity at the consumer level. Rather, it is developing the interoperable network of health care providers that will help EMRs, PHRs, health record banks community repositories and other infrastructure components to achieve their potential.

Appendix F – Map of the Nine Regional HIEs

